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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,798	10/19/2004	Dirk Jeroen Breebaart	NL 020639	4804

24737 7590 04/16/2009

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
PAUL, DISLER	
ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
04/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/511,798	BREEBAART, DIRK JEROEN	
	Examiner	Art Unit	
	DISLER PAUL	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8; 11-13;15-18;20-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *14;19;23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 20-22 are rejected under 35 U.S.C. 101 because as not falling within one of the four statutory categories of invention. The statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing.

While the instant claim recites a series of steps or acts to be performed, such as "employing, and processing" with regard to claim 20, the claim neither transforms underlying subject matter nor positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process.

Response to Arguments

2. Applicant's arguments with respect to independent claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> ((a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-4, 7-8; 20 are rejected under 35 U.S.C. 102(a) as being anticipated by Irwan et al. (US 2002/0118840 A1).

RE claim 1, Irwan et al. disclose of a decorrelator, a method of synthesizing a first and a second output signal from an input signal, the method comprising: applying the input signal to a filter of the decorrelator to generate a filtered signal (fig.2 (24); fig.3 (24a, 24 b) ; par[0024]/input filtered); and obtaining from an analysis circuit of the decorrelator, a correlation parameter indicative of a desired correlation between the first and second output signals (fig.3 (23); fig.5-7; par [0030-0035]/cross-correlation is also determined with phase and anti-phase of the signals) and obtaining from the analysis circuit of the decorrelator a level parameter indicative of a desired level difference between the first and second output signals (fig.7; par [0044]/*strength of the signals*

or level may also be determined) and applying the input signal and the filtered signal to a transformation circuit of the decorrelator and performing a matrixing operation on the input signal and the filtered signal to transform the input signal and the filtered signal into the first and second output signals, where the matrixing operation employs the correlation parameter and the level parameter (fig.2 (25); par [0024,027; 0037]/matrix based on correlation and strength/level of the signals).

Re claim 2, the method according to claim 1, wherein the matrixing operation comprises a common rotation by a predetermined angle of the first and second output signals in a space spanned by the input signal and the filtered input signal (par [0035] determine the angle for matrixing); and where the predetermined angle depends on the level parameter (par [0044]/angle with correlation depend with strength level).

Re claim 7, Irwan et al. disclose of a device for synthesizing a first and a second output signal from an input signal, the arrangement comprising: a filter for filtering the input signal to generate a filtered signal (fig.2 (24)); an analyzer for obtaining a correlation parameter indicative of a desired

correlation between the first and second output signals and for obtaining a level parameter indicative of a desired level difference between the first and second output signals (fig.2 (23); fig.5-7; par [0030-0035,0044]); a transformation circuit for transforming the input signal and the filtered signal by a matrixing operation into the first and second output signals, where the matrixing operation depends on the correlation parameter and the level parameter (fig.2 (25); par [0024,027; 0037]/matrix based on correlation and strength/level of the signals).

Re claim 3, the method according to claim 2, but, wherein the predetermined angle is selected to inherently maximize a total contribution of the input signal to the first and second output signals (fig.7; par [0044])/to determined angle correlation and contribution to signal).

Re claim 4, the method according to claim 1, wherein further comprising scaling each of the first and second output signals to said desired level difference between the first and second output signals (par [0044]/signal factor/strength for the channel).

Re claim 8, the device of claim 7, further comprising an input unit for receiving an encoded audio signal and a decoder for decoding the encoded audio signal to produce the input signal (par [0004-0005]/system to be used on CD/to be decoded such encode signals).

Re claim 20 has been analyzed and rejected with respect to claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5-6; 11-13; 15-17; 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irwan et al. (US 2002/0118840 A1) and Ali (US 6,895,093 B1).

Re claim 5, the method according to claim 1 with input signal being filtered, But, Irwan et al. fail to disclose of the wherein the filtering of the input signal comprises all-pass filtering. But, Ali disclose of a system wherein similar concept of filtering with the filter being of the all-pass filtering

(fig.3; col.5 line 65-col.6 line 5). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with the filtering of the input signal comprises all-pass filtering for purpose of obtaining good stereophonic signal decorrelation without affecting stereo perception.

Re claim 6, the method according to claim 5, wherein the all-pass filter comprises a frequency-dependant delay (col.5 line 65-col.6 line 5).

RE claim 11 has been analyzed and rejected with respect to claim 5.

Re claim 12, the method of claim 11, wherein applying the input signal to the all- pass filter to generate the filtered signal comprises applying the input signal to the all- pass filter wherein the all-pass filter provides a frequency-dependent delay element (see claim 6 rejection analysis).

But, the combined teaching of Irwan and Ali as a whole, fail to disclose of the specific wherein the delay at a frequency Y is less than a delay at a frequency X, when Y > X.

But, it is noted that having such specific wherein the delay at a frequency Y is less than a delay at a frequency X, when Y > X is merely an obvious variation of the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination wherein the the delay at a frequency Y is less than a delay at a frequency X, when Y > X for obtaining good stereophonic signal decorrelation without affecting stereo perception.

Re claim 13, the method of claim 11 with the applying the input signal to the all- pass filter to generate the filtered signal comprises applying the input signal to the all- pass filter, but, the combined teaching of Irwan and Ali as a whole, fail to disclose of the specific wherein the all pass filter comprising one period of a Schroeder-phase complex. But, official notice is taken having such a specific of all pass filter comprising one period of a Schroeder-phase complex is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with the all pass filter comprising one period of a Schroeder-phase complex for further obtaining good stereophonic signal decorrelation without affecting stereo perception.

Re claims 15-17 have been analyzed and rejected with respect to claims 11-13 respectively.

Re claim 21 has been analyzed and rejected with respect to claim 11 respectively.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irwan et al. (US 2002/0118840 A1) and Shaffer et al. (US 6,973,184 B1).

Re claim 18, the device of claim 7, wherein the means for obtaining the correlation parameter and the means for obtaining the level parameter comprise an analysis circuit that receives a set of spatial parameters pertaining to the input signal including at least: an interaural phase difference (IPD) parameter and a value of a cross-correlation function parameter, and extracts from the set of spatial parameters the correlation parameter and the level parameter (par [0035-0036], fig.6-7/phase parameter and correlation of the signals).

But, Irwan et al. fail to disclose of the parameters including: an interaural level difference (ILD) parameter; at least one of an interaural time difference (ITD) parameter. But, Shaffer et al. disclose of a system wherein the parameters including: an interaural

level difference (ILD) parameter; at least one of an interaural time difference (ITD) parameter (col.4 line 35-67; col.5 line 40-67). Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with the parameters including: an interaural level difference (ILD) parameter; at least one of an interaural time difference (ITD) parameter for obtaining directional cues of the produced sound.

While, the combined teaching of Irwan et al. and Shaffer et al. as whole, fail to disclose of specific having a *maximum value* of a cross-correlation function parameter. But, it is noted having such specific wherein the *maximum value* of a cross-correlation function parameter is merely an obvious variation of the designer's need. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combination with the *maximum value* of a cross-correlation function parameter for obtaining optimal directional cues of the produced sound.

Allowable Subject Matter

4. Claims 14, 19, 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 2614

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2614